

REMARKS

Claims 1-36 are currently pending in the subject application and are presently under consideration. A complete listing of claims is found on pages 2-10 of this Reply.

Applicants' representative thanks the Examiner for the courtesies extended during a telephonic interview on October 13, 2004, during which it was agreed that the amendments made after final rejection to correct minor typographical errors should have been entered for purposes of appeal. Accordingly, claims 17 and 18, as presented herein, reflect the amendments made in the Reply to Final Office Action dated June 15, 2004.

Favorable reconsideration of the subject patent application is respectfully requested in view of the comments and amendments herein.

I. Rejection of Claims 1-36 Under 35 U.S.C. §103(a)

Claims 1-36 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Hashimoto (US 6,018,688) in view of Kahn, *et al.* (US 5,567,927). Withdrawal of this rejection is respectfully requested for at least the following reasons. Neither Hashimoto nor Kahn, *et al.* teach or suggest every aspect set forth in the subject claims.

To reject claims in an application under §103, an examiner must establish a *prima facie* case of obviousness. A *prima facie* case of obviousness is established by a showing of three basic criteria. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. *See* MPEP §706.02(j). The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure. *See In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

The present invention relates generally to inventory control and wafer *routing* during manufacture, and in particular to systems and methods for facilitating inventory control and routing of wafer products and circuits marked with a barcode. Independent

claim 1 recites, “A system for performing inventory control, comprising: one or more inventories adapted to store at least one of wafers, unpackaged circuits and packaged circuits, where the wafers are suitable for processing into integrated circuits, and where at least one of the wafers, the unpackaged circuits and the packaged circuits are marked with one or more barcodes; one or more barcode readers operable to read one or more barcodes on at least one of the wafers, the unpackaged circuits and the packaged circuits; and *one or more sorters adapted to route at least one of wafers, unpackaged circuits and packaged circuits to one or more inventories based, at least in part, on information encoded by the one or more barcodes.*” Independent claims 14, 16, 27, 35 and 36 set forth similar aspects (e.g., *routing and/or sending a wafer to a specific destination* based on barcode information). According to the subject application, “The wafer 100 is marked with a barcode 110.” (Page 7, lines 19-20.) “The *barcode 210 facilitates locating a wafer 200 to process and determining to which device the wafer 200 should be routed* by facilitating locating stored information about the wafer 200.” (Page 8, lines 24-26.) “Data from the barcode readers can be passed to one or more *sorters that can route the wafers, unpackaged circuits and packaged circuits to appropriate destinations, based, at least in part, on information encoded in the barcodes.*” (Page 3, lines 4-7.) Thus, the present invention utilizes a *bar code on a wafer* to access and update processing information associated with the wafer and then *selectively routes the wafer to a specific manufacturing device according to the manufacturing requirements of the wafer.* Hashimoto does not disclose such elements of applicants’ invention as recited in the subject independent claims.

Independent claim 14, in addition to reciting *a sorter that routes wafers based on barcode information*, sets forth the aspect of “*one or more Electronic Data Interchange (EDI) systems adapted to transmit one or more EDI data to one or more EDI data destinations*, the one or more EDI data being generated by at least one of the one or more barcode readers, the one or more inventories, the one or more sorters, the one or more manufacturing devices and the one or more feedback systems.” This aspect is not addressed by the Examiner, and applicants’ representative cannot find any mention of an EDI system in the cited references.

Independent claim 28 sets forth the aspect of marking at least one barcode on each of a wafer, an integrated circuit on the wafer, and a wafer package such that the various bar codes and/or information associated therewith can be related to each other to facilitate wafer manufacture control. The Examiner has not indicated that Hashimoto teaches or suggests such aspects, and in fact Hashimoto does not even mention these aspects of independent claim 28.

Similarly, the Examiner does not address independent claim 32, which sets forth "...generating Electronic Data Interchange (EDI) data associated with one or more barcodes on one or more wafers...and transmitting the EDI data to one or more suppliers of the wafers." Regardless, a careful review of the reference reveals that Hashimoto does not mention generating or transmitting EDI data, as set forth in independent claim 32.

The Examiner, in the Final Office Action dated June 15, 2004, stated that the "features upon which applicant relies (i.e., a sorter that routes wafers) are not recited in the claims." Applicants' representative respectfully points out that the subject system claims do in fact recite "one or more *sorters adapted to route* at least one of wafers, unpackaged circuits,..." Similarly, the subject method claims recite "*sending the wafer* to a wafer destination based at least in part on information encoded in the barcode."

The Examiner suggested in a telephonic interview on August 5, 2004, that Hashimoto *indirectly* "routes" a wafer to a manufacturing device based on barcode information, citing a dictionary definition of "routing" as "sending by a selected route" or "diverting in a specified direction." Contrary to the Examiner's contention, Hashimoto does not teach or suggest "diverting" a wafer to a specific manufacturing device or "selecting" a route, let alone a sorter that routes wafers based on information contained in barcodes on the wafers. Moreover, the subject specification clearly sets forth that the claimed systems and methods "route" wafers to one or more destinations without requiring that the wafer stop at each destination to permit a determination of whether that destination is a correct destination. For example, "By way of illustration, wafers manufactured during a first range of dates can be routed to a first destination by the sorter 440 while wafers manufactured during a second range of dates can be routed to a second destination. Wafers routed by the sorter 440 can be transported by a transporter 450 to

one or more wafer destinations, including but not limited to the inventories 410 and a manufacturing device 460.” (Page 12, lines 24-29).

Hashimoto merely discusses determining *whether or not to load a wafer* onto a working device *once the wafer reaches the working device*. (See, e.g., Column 3, lines 39-43: “*When the wafer 10 on the carrier 11, reaches a working device... the input/output terminal [at the working device]...reads optically the barcode 12 from the carrier 11.*”) Thus, Hashimoto clearly states that a *barcode on the carrier is read only upon arrival of the carrier at a specific working device*. Such aspects of Hashimoto inherently require that the wafer/carrier combination of Hashimoto must visit each working device before a the system can make a determination of whether or not a wafer should be loaded onto the working device, further increasing production cost and total manufacture time. Conversely, the subject claims set forth a *sorter that proactively routes wafers* depending on their respective processing requirements, as determined from information associated with a *barcode located on the wafer* itself. See, e.g., page 3, lines 12-15, describing the “sorter adapted to route” recited in the subject independent claims: “...barcodes on one or more wafers in a first inventory may be read, and data concerning those barcodes passed to a *sorter, which can route the wafers to one or more manufacturing devices so that the wafers end up in appropriate manufacturing devices.*” Thus, the present system can bypass a working device, *without having to stop at the working device*, if the information associated with the barcode on the wafer indicates that the wafer does not require the particular action provided by the working device. Hashimoto fails to teach or suggest such features of the claimed invention. Moreover, Hashimoto fails even to mention *routing a wafer to an inventory*, but rather is concerned only with receiving a wafer at a device and determining on a per-device basis whether or not to load the wafer into the device.

Kahn *et al.* fails to overcome the deficiencies of Hashimoto with respect to independent claims 1, 14, 16, 27, 35, and 36. Specifically, Kahn *et al.* does not teach or suggest “*one or more sorters adapted to route at least one of wafers, unpackaged circuits and packaged circuits to one or more inventories based, at least in part, on information encoded by the one or more barcodes.*” Rather, Kahn *et al.* merely discusses loading a plurality of wafers into a storage rack and scanning barcodes on the wafers to

determine identities associated with the wafers in the rack. Moreover, Khan *et al.* does not teach or suggest the aspect of marking each of a wafer, an integrated circuit on the wafer, and a package encasing the wafer, with respective barcodes that contain information that can be utilized to facilitate manufacture control, as set forth in independent claim 28. Still furthermore, Khan *et al.* does not teach or suggest generating EDI data associated with one or more barcodes on one or more wafers, let alone transmitting EDI data to one or more suppliers of the wafers, as set forth in independent claim 32.

With respect to the dependent claims rejected herein, the Examiner fails to address aspects set forth therein, many of which are not taught or suggested by Hashimoto or Khan *et al.*, whether read alone or in combination. For example, the cited references do not teach or suggest “at least one of one or more inventories is portioned into one or more addressable locations,” (claim 4, claim 5); “at least one of the one or more inventories is operable to selectively retrieve an individual designated wafer, unpackaged circuit and/or packaged circuit from an addressable location,” (claim 4); “at least one of the one or more inventories is further operable to selectively deposit at least one of an individual designated wafer, unpackaged circuit and packaged circuit in an addressable location,” (claim 4); “the sorter is adapted to selectively route at least one of wafers, unpackaged circuits and packaged circuits to one or more inventories based on at least one of age, location, supplier, stage of manufacturer and defect information,” (claim 6); *etc.* Similarly, the references fail to teach or suggest aspects set forth in dependent claims 7-13, 15, 17-26, 29-31, and 33-34. It appears that the Examiner has merely reiterated the arguments set forth in the Office Action dated January 5, 2004 and the Final Office Action dated June 15, 2004, without substantively addressing any of the other claims in the application. Moreover, the Examiner’s rejection appears only to address aspects set forth in independent claim 1, and is silent regarding aspects of the other independent claims.

In view of at least the above, it is readily apparent that neither Hashimoto nor Kahn *et al.*, alone or in combination, make obvious the present invention as recited in independent claims 1, 14, 16, 27, 28, 32, 35, and 36 (and claims 2-13, 15, 17-26, 29-31,

33, and 34, which depend respectively there from). Accordingly, this rejection should be withdrawn.

CONCLUSION

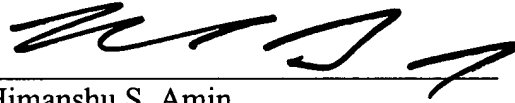
The present application is believed to be in condition for allowance in view of the above comments and amendments. A prompt action to such end is earnestly solicited.

In the event any fees are due in connection with this document, the Commissioner is authorized to charge those fees to Deposit Account No. 50-1063.

Should the Examiner believe a telephone interview would be helpful to expedite favorable prosecution, the Examiner is invited to contact applicants' undersigned representative at the telephone number listed below.

Respectfully submitted,

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